

An aerial photograph of a wetland area, likely the Great Salt Lake. The image shows a large body of blue water surrounded by brown, marshy land. There are some straight lines, possibly roads or canals, cutting through the landscape. The overall tone is somewhat desaturated, with a focus on the natural colors of the water and land.

Evaluating the Technical Feasibility of Integrating Wetlands into a Water Quality Trading Program for the Great Salt Lake:

An Alternative Futures Approach

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Purpose of Project

- To analyze the consequences of various management scenarios in the Farmington Bay area of Great Salt Lake
- To produce three GIS-based spatial models for futures scenarios in Farmington Bay
- To examine the potential integration of a water quality trading program in the Farmington Bay area

Desired Project Outcomes

- To complement ongoing research efforts currently in the Farmington Bay area
- To help the Farmington Bay community to make informed decisions regarding planning and water management
- To present strategies for easing pressures on wetlands and wildlife

Project Timeline

Task 1 – Finalize QAPP, September, 2007

Task 2 – Assemble Design Team, October, 2007

Cadmus is currently working with EPA to select a design team that will periodically meet and communicate to:

- Review basic goals and objectives
- Refine the project plan
- Coordinate tasks
- Establish project approach and schedule

Task 3 – Site Inventory and Literature Review, October 30, 2007

Cadmus has completed a thorough literature review and developed a reference matrix

Project Timeline

Task 4 – GIS Map and Database Development, November, 2007

GIS and other data will be identified, collected and stored in a library for use in development of the spatial models

Task 5 – On-Site Workshop, December, 2007

A workshop will be held in Salt Lake City to address the following:

- Analysis and modeling approaches to be used
- Major wetland types to be chosen for template development
- The scenarios for futures analysis

Task 6 – Template and GIS Model Development March, 2007

A series of templates of parcel scale models representing different wetland treatment/restoration options will be developed. The GIS spatial model will be used to evaluate the 3 scenarios

Project Timeline

Task 7 – Model Evaluation of Scenarios, May, 2008

Cadmus will conduct model evaluations of the three scenarios

Task 8 – Draft Feasibility Report, June, 2008

A feasibility report based on the model evaluations will be prepared

Task 9 – Outreach Workshop, July, 2008

An outreach workshop will be held in Salt Lake City to discuss stakeholder communication and address any revisions to the feasibility report

Task 10 – Final Feasibility Report, December, 2008

Cadmus will submit a revised final feasibility report

Alternative Futures Scenarios

Method for predicting the impact on defined “endpoints” based on future development and conservation scenarios

Example:

- Area:
 - The Willamette River Basin
- Selected Endpoints:
 - Water Availability
 - Willamette River
 - Stream Condition (WQ)
 - Terrestrial Wildlife

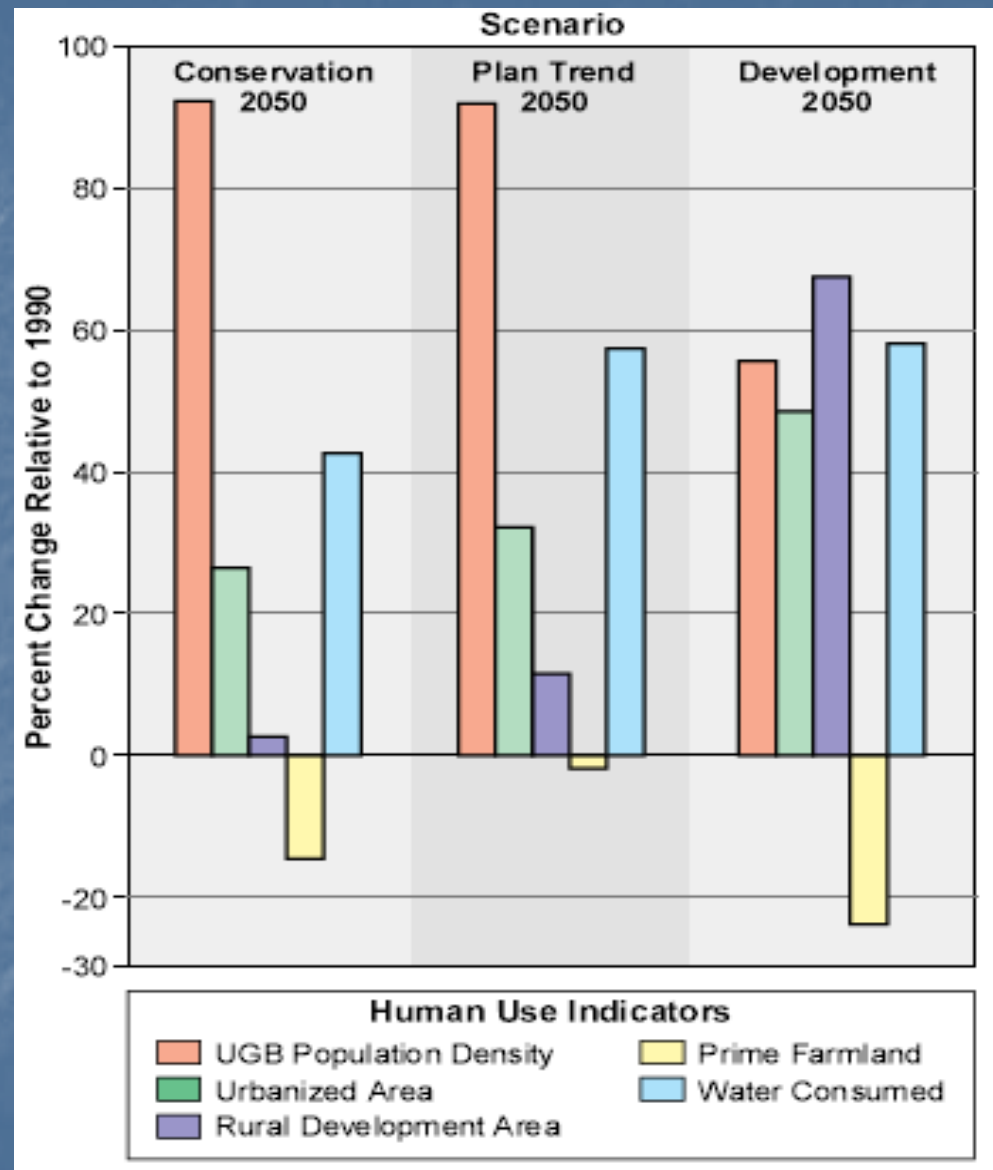


Fig.1, WRB Executive Summary, EPA

Basic Willamette Project Framework

- **Define Current Scenario** – Base current environmental and social parameters on local research, knowledge and data
- **Estimate Historic Scenario** – Choose an appropriate “historic” year (i.e., prior to European settlement)
- **Create Three Futures Scenarios** – An appropriate end-year should be determined for Future Scenarios (i.e., 2040, 2050, 2060)

3 Willamette Futures Scenarios

- **Plan Trend**

- Assumes current policies and development/conservation trends continue

- **Conventional**

- Assumes relaxing of current policies to encourage development

- **Conservation**

- Assumes a priority emphasis on eco-system protection and restoration
- Still within bounds plausible to stakeholders

Other Examples of Alternative Futures Scenarios Frameworks

- Wasatch Range Open Space Study, Utah
- Bear River Watershed Project, Utah
- Cache Valley 2030, Utah
- Willamette Basin, Oregon
- Muddy River, Oregon
- Blackberry Creek, Illinois
- Monroe River, Pennsylvania
- Camp Pendleton, California

Water Quality Trading

- “Facilities facing high pollution-control costs to meet their regulatory requirements can purchase environmentally equivalent or superior pollution reductions from another source.” *EPA*
- Water Quality trading in Non-point source pollution credits can come from:
 - Stream bank Restoration
 - Conservation Tillage
 - Erosion Control

Wetland & WQ Trading

- Wetlands can be strategically constructed or restored to “dampen” nitrogen, phosphorous and sediment effluent from a WWTP
- By evaluating the functionality of existing wetlands and identifying areas suitable for restoration or protection, wetlands can then be used as “credits”

Complexities

- **Limited Examples** – Wetland trading has not yet been fully utilized as a standard watershed restoration practice
- **Lack of Research** – Studies of wetland performance
- **Liability** – Under the EPA policy, the purchaser (WWTP) of credits transfers liability to the 3rd party mitigator (Watershed Organization); otherwise there is no market

Questions to Consider

1. Can a wetland monitoring and assessment network be implemented to measure wetland condition and wetland performance for nutrient management?
2. How might we account for unintended consequences
3. How much opportunity exists in the study area for wetland restoration and the implementation of related BMPs?
4. Do administrative and financial incentives exist for evaluating the feasibility of a trading program?